Graduate Students and Postdoctorates in Science and Engineering

Fall 1995

Detailed Statistical Tables

Division of Science Resources Studies
Directorate for Social, Behavioral and Economic Sciences

National Science Foundation NSF 97-312

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Contributors

Data collection, preparation, and tabulations were performed by Quantum Research Corp. for the National Science Foundation. The Project Officer for this report was Joan Burrelli.

Table of Contents

Section *Page*

General Notes

Data presented in these tables are derived from the National Science Foundation/National Institutes of Health (NSF/NIH) Survey of Graduate Students and Postdoctorates in Science and Engineering (graduate student survey), Fall 1995. Unless otherwise specified, the published data represent estimates of total enrollment in science and engineering (S&E) programs in approximately 11,598 graduate departments at 602 institutions in the United States and outlying areas.

All eligible institutions were included in the survey population in the years 1988 through 1995. From 1984 through 1987 the surveys were conducted on a stratified random sample basis, with all doctorate-granting institutions, all master's-granting historically black colleges and universities, and all land-grant institutions included in the certainty stratum. The remaining master's-granting institutions were divided into two sample strata on the basis of enrollment size. Data for sampled institutions for the years 1984-87 were reestimated in 1988 on the basis of 1983 and 1988 data. During the 1989 survey cycle, S&E field definitions were reviewed and some departments were deleted. Data for 1975 through 1988 were adjusted to conform to the revised definitions.

In 1992, the citizenship categories requested were modified to conform to those used in other surveys conducted by NSF, the Department of Education's National Center for Education Statistics (NCES), and others. Prior to that time, permanent residents (those who held green cards but had not yet been granted U.S. citizenship) were to be included in "Foreign"; in subsequent years these individuals were included in the "U.S. citizens" total and reported according to racial/ethnic background.

For these reasons, and because institutions may revise their data for earlier years, only the latest trend data should be used in historical analyses.

To meet the needs of those interested in more detailed data of a specific type, NSF has developed a series of Supplementary Data Releases focusing on specific data topics. The supplementary tables as well as the full report are available through the Division of Science Resources Studies World Wide Web site (http://www.nsf.gov/sbe/srs/stats.htm). For further information on data availability, please contact—

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TECHNICAL NOTES

THE SURVEY UNIVERSE

The data collected in the fall 1995 Survey of Graduate Students and Postdoctorates in Science and Engineering (GSPSE) represent national estimates of graduate enrollment and postdoctoral employment at the beginning of academic year 1995–96 in all academic institutions in the United States that granted doctorate or master's degrees in any science or engineering field. Included are data for all branch campuses, affiliated research centers, and separately organized components such as medical or dental schools, schools of nursing, public health, etc. The survey universe consisted of 722 reporting units at 602 graduate institutions. Included were 257 master's-granting institutions and 465 reporting units associated with 345 doctorate-granting institutions.

The National Science Foundation (NSF) has collected data on graduate science and engineering (S&E) enrollment and postdoctoral appointees since 1966. From fall 1966 through fall 1971, data from a limited number of doctorate-granting institutions were collected through the NSF Graduate Traineeship Program, which requested data only on those S&E fields supported by NSF. Beginning with the fall 1972 survey, this data collection effort was assigned to the Universities and Nonprofit Institutions Studies Group and was gradually expanded during the period 1972–75 to include additional S&E fields as well as all institutions known to have programs leading to the master's or doctorate degree. Because of this expansion, data for 1974 and earlier years are not strictly comparable with 1975 and later data. Technical Table 1 shows the number of institutions, reporting units, and departments at each level included in the data, as well as the total enrollment reported for each year between 1966 and 1995. No attempt has been made to inflate the data for 1966–74 to reflect universe totals.

Beginning with the 1984–85 academic year, master's-granting institutions were surveyed on a sample basis. The fall 1988 survey included the entire survey population for the first time since 1983–84. For each year since 1988, any institutions that begin S&E master's or doctoral programs are added to the survey universe and any that close all their S&E graduate programs are deleted. (See Survey Methodology, below.)

Technical Tables 2 and 3 present data on departmental coverage by S&E field for doctorate-granting and master's-granting institutions for the last 8 years surveyed.

THE SURVEY INSTRUMENTS

The Survey Questionnaire on which data were reported in fall 1995 was identical to the fall 1994 version, except for changes in the instructions to clarify some data items.

Each survey package also included the following items, copies of which are reproduced later in this publication:

1. an enclosure detailing mailing package contents;
2. a flyer explaining NSF's academic S&E surveys;
3. cover letter to survey coordinators at graduate schools or at medical schools;
4. cover letter to departmental respondents;
5. a computer-generated List of Departments or Programs (NSF Form 811) specific to each institution surveyed and based on the departments known to exist in the previous survey cycle;
6. a "crosswalk" showing National Center for Education Statistics (NCES) instructional program codes corresponding to each S&E field as defined by NSF;
7. a "How To Avoid Common Survey Errors" sheet with guidelines for avoiding the most common mistakes made in the graduate student survey; and
8. a postcard acknowledging receipt of the survey and requesting the respondent to indicate changes in coordinator name, address, telephone number, or e-mail address.

SURVEY METHODOLOGY

The survey packages were mailed out by November 30, 1995. The final survey universe consisted of 722 responding units at 602 institutions.

The acknowledgment postcard requested that institutional coordinators indicate how the data were collected, whether the data were maintained centrally or collected from individual departments, and whether

they were derived from a computerized database or were hand tabulated. Of the 722 responding schools surveyed, coordinators at 702 units, or 97 percent, have provided this information over the past 8 years.

The number of schools using computerized systems to assemble the requested data increased, as did those using a combination of data sources. The number of schools using automated systems with department input and those hand tabulating data at the school level remained relatively the same as last year, whereas those hand tabulating data at the department level decreased.

Institutional coordinators were asked to review the departmental listing provided on the Survey Questionnaire, to indicate any changes in their departmental structure such as departments newly formed, phased out, split, or merged, and to check off any departments that had neither graduate students nor postdoctorates and for which Survey Questionnaires would therefore not be submitted. The revised Form 811s were returned to the data processing contractor for use as a checklist in tracking departmental responses.

A Survey Questionnaire was completed for each department either centrally or at the departmental level and was returned to the data processing contractor for data entry, editing, and tabulation. Arithmetic errors, inconsistencies between items, and sharp year-to-year fluctuations were referred to the institutional coordinators for correction or clarification.

The Response Rate

Of the 722 responding units included in the fall 1995 survey, 712, or 98.5 percent, were able to provide at least partial data, distributed as follows:

At the departmental level 11,244 departments responded, or 96.9 percent of the 11,598 departments surveyed. This includes 9,514 departments providing complete responses, or 82.0 percent of the total. A total of 354 departments, or 3.1 percent of the departmental total, required complete imputation, and 1,730, or 14.9 percent, had one or more data cells imputed. Technical Table 4 presents the department response rates for earlier years for comparison.

Missing data for partially nonrespondent departments were imputed using the departments' previous year's data, where available, or data from peer institutions in cases where data had not been reported the previous year. Data for nonrespondent departments (departments that did not provide any data) were imputed using data from the previous year, where available. The number of departments in doctorate-granting and master's-granting institutions that required total or partial imputation and the numbers and proportions of full-time and part-time graduate students and postdoctorates imputed are shown in Technical Tables 5 and 6. Imputation rates by survey data item are provided in Technical Table 7.

Changes in Data Items

Although NSF has attempted to maintain consistent trend data, some modifications in the survey questionnaire have been made to respond to changing issues over the past 15 years. As a result some data items are not available for all institutions in all years.

Major changes in the data collected are as follows:

- From 1975 through 1977, data for master's-granting institutions were collected on a short form (i.e., an abbreviated form of the survey) that did not collect data on sex or citizenship of graduate students, nor any data on postdoctoral appointees. In 1978 a similar questionnaire was sent to doctorate-granting institutions, but master's-granting institutions were not surveyed. In addition, the 1978 questionnaire did not collect data on mechanisms of support for full-time students. All mechanisms of support data for that year were combined on one line and appeared as "other types of support" in any data tables. The 1978 figures shown in the tables for master's-granting institutions represent estimates based on 1977 and 1979 data. Beginning in 1979 the long form (i.e., the full-scale survey form) was sent to both doctorate-granting and master's-granting institutions.

- Distribution by sex was originally requested only for full-time graduate students at doctorate-granting institutions. Beginning in 1976 master's-granting institutions were requested to provide data on all graduate students by sex, and in 1977 similar data were requested for all graduate students in all institutions. The short form used in the 1978 survey did not request any information on sex; figures in the tables represent estimates based on 1977 and 1979 data.

- Citizenship data were collected only for graduate students enrolled full-time in doctorate-granting institutions through 1977. No citizenship data were requested on the short form used for master's-granting institutions in 1975 through 1977 and for

doctorate-granting institutions in 1978. Data on citizenship of all full-time graduate students are available beginning in 1979 and on those enrolled part-time since 1983.

- Racial/ethnic data were first requested in 1979 and became a standard item on the questionnaire in 1980.
- "Fellowships and traineeships" were combined on one line until 1979, when separate data on the two mechanisms were first collected.
- "Other nonfaculty research staff with doctorates" were combined with postdoctoral appointees until 1979.
- Separate data on students receiving their primary support from the U.S. Department of Agriculture were first requested in 1985.
- Racial/ethnic data by sex were first requested in 1993 and became a standard item on the questionnaire in 1994.

Data Revisions

During the fall 1988 survey cycle, the criteria for including departments in the survey universe were tightened, and all departments surveyed were reviewed. Those departments not primarily oriented toward granting research degrees were no longer considered to meet the definition of science and engineering. As a result of this review, it was determined that a number of departments, primarily in the field of "social sciences, n.e.c." (not elsewhere classified), were engaged in training primarily teachers, practitioners, administrators, or managers rather than researchers; these departments were deleted from the database. This process was continued during the fall 1989–95 survey cycles and expanded to ensure trend consistency for the entire 1975–95 period. As a result, total enrollments and social science enrollments for all years were reduced. The net effect of adjustments over the years is shown in Technical Table 8.

During the same period, the survey methodology changed so that an institution's highest science and engineering degree in the current year would apply to all previous years that the institution was surveyed. Since a number of master's-granting institutions have become doctorate-granting institutions, the combined effect has been a smaller decrease in enrollment at doctorate-granting institutions than at master's-granting institutions, and for the years 1975-76 and 1991-92, an increase in enrollment at doctorate-granting institutions after subsequent-year modifications.

The definition of "medical schools" was revised during the fall 1992 survey cycle to include only those institutional components that are members of the Association of American Medical Colleges. Tables generated after the fall 1992 survey differ from their counterparts in earlier years in that they exclude schools of nursing, public health, dentistry, veterinary medicine, and other health-related disciplines, and should not be compared with tables from earlier years.

List of Technical Tables

Technical Table 1. The NSF data collection series: 1966-95

Year	Number of institutions surveyed	Number of reporting units	Number of departments			Graduate enrollment in surveyed fields		
			Total	Master's	Doctorate	Total	Full-time	Part-time
A. Graduate Traineeship Program								
1966	204	204	2,866	441	2,425	169,303	124,255	45,048
1967	209	209	3,014	434	2,580	179,622	133,972	45,650
1968	219	219	3,190	454	2,736	184,759	140,714	44,045
1969	224	224	3,354	460	2,894	196,341	147,515	48,826
1970	227	227	3,544	473	3,071	201,918	153,250	48,668
1971[1]	224	249	3,397	407	2,990	214,680	164,764	49,916
B. Survey of Graduate Students and Postdoctorates in Science and Engineering[2]								
Doctorate institutions:								
1972	260	328	4,593	780	3,813	210,895	161,329	49,566
1973	259	336	6,538	859	5,679	214,459	161,582	52,877
1974	280	370	7,486	1,399	6,087	260,494	190,844	69,650
1975	323	420	7,866	1,686	6,180	295,146	207,417	87,729
1976	332	430	7,960	1,739	6,221	298,939	210,882	88,057
1977	333	436	8,172	1,856	6,316	306,381	212,897	93,484
1978	311	420	8,130	1,739	6,391	298,938	208,588	90,350
1979	349	466	8,414	1,923	6,491	314,736	216,842	97,894
1980	348	465	8,521	1,975	6,546	324,203	222,850	101,353
1981	346	461	8,447	1,972	6,475	331,042	226,607	104,435
1982	343	459	8,304	1,959	6,345	337,142	229,540	107,602
1983	342	458	8,178	1,921	6,257	343,923	235,687	108,236
1984	331	451	8,178	1,888	6,290	346,425	236,747	109,678
1985	331	446	8,286	1,924	6,362	355,818	240,449	115,369
1986	331	448	8,360	1,936	6,424	366,668	249,107	117,561
1987	335	454	8,471	1,936	6,535	372,130	253,689	118,441
1988	347	467	8,717	2,020	6,697	377,612	259,031	118,581
1989	348	468	8,838	2,033	6,805	384,800	266,027	118,773
1990	347	467	8,976	2,072	6,904	398,208	274,596	123,612
1991	347	467	9,168	2,090	7,078	413,570	287,023	126,547
1992	347	467	9,404	2,131	7,273	432,431	300,980	131,451
1993	347	467	9,593	2,140	7,453	440,471	306,942	133,529
1994	346	466	9,809	2,199	7,610	441,164	308,743	132,421
1995	345	465	9,989	2,253	7,736	436,328	305,652	130,676
Master's institutions:								
1975[3]	263	263	1,140	1,140	N/A	33,563	12,427	21,136
1976	264	264	1,153	1,153	N/A	34,885	12,631	22,254
1977	269	269	1,223	1,223	N/A	39,110	13,948	25,162
1978[4]	289	289	1,382	1,382	N/A	41,023	14,490	26,533
1979	281	281	1,276	1,276	N/A	42,952	15,026	27,926
1980	279	279	1,281	1,281	N/A	42,955	15,642	27,313
1981	277	277	1,285	1,285	N/A	44,161	15,511	28,650
1982	267	267	1,284	1,284	N/A	45,229	15,290	29,939
1983	267	267	1,293	1,293	N/A	46,599	16,405	30,194
1984[5]	80	80	616	616	N/A	48,293	17,212	31,081
1985[5]	80	80	628	628	N/A	48,270	16,902	31,368
1986[5]	80	80	629	629	N/A	48,889	17,090	31,799
1987[5]	80	80	637	637	N/A	49,396	17,391	32,005
1988	258	258	1,304	1,304	N/A	47,059	16,173	30,886
1989	260	260	1,355	1,355	N/A	49,837	16,714	33,123
1990	262	262	1,389	1,389	N/A	54,042	18,258	35,784
1991	261	261	1,437	1,437	N/A	57,744	20,026	37,718
1992	260	260	1,478	1,478	N/A	61,395	21,773	39,622
1993	258	258	1,524	1,524	N/A	64,367	22,934	41,433
1994	258	258	1,580	1,580	N/A	64,095	23,710	40,385
1995	257	257	1,609	1,609	N/A	65,182	24,583	40,599

[1] The 1972 survey also collected selected data for 1971.

[2] The name of the survey was changed in 1981 to specify the inclusion of engineering.

[3] The 1976 survey also collected 1975 data from master's-granting institutions.

[4] Master's-granting institutions were not surveyed in 1978; totals represent estimates based on 1977 and 1979 data.

[5] Master's-granting institutions were surveyed on a sample basis from 1984 through 1987.

KEY: N/A = Not applicable

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 2. Science, engineering, and health departmental population at doctorate-granting institutions, by field: 1988-95

Field	1988	1989	1990	1991	1992	1993	1994	1995
Total, all surveyed fields	8,717	8,838	8,976	9,168	9,404	9,593	9,809	9,989
Total, science and engineering fields	6,321	6,398	6,468	6,619	6,772	6,863	7,006	7,128
Sciences, total	5,122	5,189	5,238	5,352	5,470	5,539	5,646	5,739
Physical sciences	542	545	543	551	556	559	561	568
Astronomy	33	33	33	33	33	34	34	35
Chemistry	259	261	261	263	264	264	262	263
Physics	234	237	235	242	244	246	250	252
Physical sciences, n.e.c.	16	14	14	13	15	15	15	18
Earth, atmospheric, & ocean sciences	300	303	306	318	320	324	333	347
Atmospheric sciences	28	28	28	29	29	31	32	33
Geosciences	192	192	192	200	201	201	205	209
Oceanography	37	42	42	45	45	45	46	50
Earth, atmos., & ocean sci., n.e.c.	43	41	44	44	45	47	50	55
Mathematical sciences	348	352	357	363	370	376	385	390
Mathematics & applied mathematics	284	287	290	294	295	299	305	309
Statistics	64	65	67	69	75	77	80	81
Computer sciences	216	219	230	237	248	251	258	268
Agricultural sciences	280	284	294	302	314	311	317	324
Biological sciences	1,814	1,823	1,825	1,867	1,906	1,950	1,977	1,994
Anatomy	113	115	107	106	105	104	104	101
Biochemistry	189	189	182	186	189	189	190	191
Biology	225	227	232	230	232	231	230	230
Biometry/epidemiology	48	49	51	56	61	69	71	72
Biophysics	31	32	31	33	33	33	33	34
Botany	108	107	104	104	102	103	104	101
Cell biology	87	88	92	96	104	110	118	120
Ecology	22	25	26	27	28	27	31	31
Entomology/parasitology	48	47	48	49	48	49	49	48
Genetics	64	65	67	72	76	79	82	84
Microbio., immunology, & virology	234	233	237	243	249	260	261	265
Nutrition	98	98	103	108	112	114	119	123
Pathology	145	143	143	147	145	143	143	144
Pharmacology	166	165	162	163	166	167	168	168
Physiology	146	150	145	146	146	146	144	146
Zoology	52	50	49	49	47	50	50	50
Biosciences, n.e.c.	38	40	46	52	63	76	80	86
Psychology	431	452	465	487	510	515	532	548
Psychology, general	164	189	196	214	234	239	252	260
Clinical psychology	186	166	168	167	165	162	164	164
Psychology, n.e.c.	81	97	101	106	111	114	116	124
Social sciences	1,191	1,211	1,218	1,227	1,246	1,253	1,283	1,300
Agricultural economics	51	52	52	52	53	52	53	54
Anthropology (cultural & social)	116	117	121	125	127	129	131	134
Economics (except agricultural)	193	194	193	195	199	199	202	201
Geography	95	93	94	95	97	97	98	99
History and philosophy of science	24	23	23	21	19	20	21	21
Linguistics	69	70	69	71	70	69	69	70
Political science	299	305	302	304	310	315	321	327
Sociology	162	168	171	172	172	173	174	175
Sociology/anthropology	32	31	30	28	28	25	26	25
Social sciences, n.e.c.	150	158	163	164	171	174	188	194
Engineering, total	1,199	1,209	1,230	1,267	1,302	1,324	1,360	1,389
Aerospace engineering	41	41	42	44	48	50	52	53
Agricultural engineering	41	41	41	41	41	40	38	38
Biomedical engineering	48	49	50	51	56	56	57	60
Chemical engineering	130	133	133	138	139	139	140	140
Civil engineering	187	183	186	193	198	200	210	216
Electrical engineering	188	194	197	205	212	214	221	227
Engineering science	35	35	35	36	37	39	41	39
Industrial eng./manufacturing eng.	119	125	126	132	136	145	154	157
Mechanical engineering	177	173	174	177	182	182	184	186
Metallurgical/materials eng.	80	85	89	96	101	101	104	106
Mining engineering	29	26	27	28	28	30	29	26
Nuclear engineering	27	27	26	26	25	25	26	26
Petroleum engineering	19	19	19	19	19	19	19	20
Engineering, n.e.c.	78	78	85	81	80	84	85	95

See explanatory information, if any, and SOURCE at end of table.

Technical Table 2. Science, engineering, and health departmental population at doctorate-granting institutions, by field: 1988-95

Field	1988	1989	1990	1991	1992	1993	1994	1995
Total, health fields	2,396	2,440	2,508	2,549	2,632	2,730	2,803	2,861
Medical fields	1,806	1,830	1,881	1,914	1,963	2,031	2,084	2,124
Anesthesiology	81	84	85	87	87	87	89	89
Cardiology	67	67	67	67	68	69	70	71
Oncology/cancer research	32	36	36	38	45	48	51	56
Endocrinology	72	73	74	74	73	72	74	74
Gastroenterology	64	64	65	65	66	68	71	71
Hematology	70	68	67	67	69	71	73	73
Neurology	120	125	130	135	137	145	153	154
Obstetrics and gynecology	91	91	92	92	95	96	96	96
Ophthalmology	77	78	80	80	80	81	81	81
Otorhinolaryngology	68	68	70	70	70	71	72	72
Pediatrics	106	105	107	107	109	111	115	116
Preventive medicine/community health	156	157	164	165	172	177	181	184
Psychiatry	92	98	101	100	101	103	107	107
Pulmonary disease	62	63	63	62	64	67	68	69
Radiology	121	122	128	131	135	137	139	141
Surgery	216	216	221	233	238	246	251	257
Clinical medicine, n.e.c.	311	315	331	341	354	382	393	413
Other health fields	590	610	627	635	669	699	719	737
Dental sciences	77	79	78	76	82	87	84	83
Nursing	117	119	122	125	131	135	139	145
Pharmaceutical sciences	79	81	83	84	89	91	93	95
Speech pathology/audiology	121	122	123	124	127	130	132	133
Veterinary sciences	36	37	41	41	42	44	45	46
Health related, n.e.c.	160	172	180	185	198	212	226	235

KEY: n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 3. Science, engineering, and health departmental population at master's-granting institutions, by field: 1988-95

Field	1988	1989	1990	1991	1992	1993	1994	1995
Total, all surveyed fields	1,304	1,355	1,389	1,437	1,478	1,524	1,580	1,609
Total, science and engineering fields	1,155	1,201	1,228	1,263	1,293	1,332	1,375	1,389
Sciences, total	1,002	1,035	1,050	1,084	1,113	1,149	1,186	1,197
Physical sciences	122	122	124	127	125	130	131	128
Astronomy	0	0	0	0	0	0	0	0
Chemistry	79	82	83	83	83	83	83	79
Physics	36	32	33	34	33	35	35	35
Physical sciences, n.e.c.	7	8	8	10	9	12	13	14
Earth, atmospheric, & ocean sciences	53	53	53	56	59	58	60	66
Atmospheric sciences	1	1	1	1	1	1	1	2
Geosciences	31	31	31	32	31	30	31	32
Oceanography	5	5	5	5	6	6	6	6
Earth, atmos., & ocean sci., n.e.c.	16	16	16	18	21	21	22	26
Mathematical sciences	98	102	100	103	106	112	112	112
Mathematics & applied mathematics	96	100	97	99	102	106	106	106
Statistics	2	2	3	4	4	6	6	6
Computer sciences	72	76	80	82	86	91	96	97
Agricultural sciences	28	30	25	26	27	27	33	34
Biological sciences	178	181	177	181	182	181	180	184
Anatomy	0	0	0	0	0	0	0	0
Biochemistry	3	3	3	3	3	4	5	5
Biology	140	142	140	142	141	137	135	135
Biometry/epidemiology	0	0	0	1	0	0	0	0
Biophysics	0	0	0	0	0	0	0	0
Botany	3	3	3	3	3	2	2	2
Cell biology	0	0	0	0	0	1	1	2
Ecology	3	3	3	3	3	3	3	3
Entomology/parasitology	0	0	0	0	0	0	0	0
Genetics	1	1	1	1	1	1	1	1
Microbio., immunology, & virology	3	3	2	2	2	2	2	2
Nutrition	10	10	10	10	12	14	15	17
Pathology	2	2	2	2	2	2	2	2
Pharmacology	1	1	1	1	1	1	0	0
Physiology	0	0	0	0	0	0	0	0
Zoology	2	2	2	3	3	2	2	2
Biosciences, n.e.c.	10	11	10	10	11	12	12	13
Psychology	183	197	209	215	227	238	247	245
Psychology, general	71	81	91	96	107	114	120	119
Clinical psychology	95	95	94	95	91	94	93	92
Psychology, n.e.c.	17	21	24	24	29	30	34	34
Social sciences	268	274	282	294	301	312	327	331
Agricultural economics	2	2	2	2	3	4	4	4
Anthropology (cultural & social)	11	11	12	12	12	12	12	12
Economics (except agricultural)	33	35	34	35	35	36	36	37
Geography	22	22	23	24	25	25	25	25
History and philosophy of science	0	0	0	0	0	0	0	0
Linguistics	5	5	4	6	7	7	7	7
Political science	98	101	102	104	106	108	114	116
Sociology	43	43	44	47	48	48	49	50
Sociology/anthropology	5	4	3	2	2	2	2	2
Social sciences, n.e.c.	49	51	58	62	63	70	78	78
Engineering, total	153	166	178	179	180	183	189	192
Aerospace engineering	3	3	3	2	2	2	4	4
Agricultural engineering	0	0	0	0	0	0	0	0
Biomedical engineering	3	3	3	3	3	4	4	4
Chemical engineering	7	7	7	8	8	8	8	9
Civil engineering	28	31	31	31	31	32	34	37
Electrical engineering	31	37	43	42	44	44	44	46
Engineering science	3	2	2	2	2	2	2	2
Industrial eng./manufacturing eng.	23	26	27	29	30	30	30	32
Mechanical engineering	23	24	26	25	24	25	25	26
Metallurgical/materials eng.	4	5	6	6	6	6	6	5
Mining engineering	4	4	4	4	4	4	4	2
Nuclear engineering	0	0	0	0	0	0	0	0
Petroleum engineering	2	2	2	2	2	2	2	2
Engineering, n.e.c.	22	22	24	25	24	24	26	23

See explanatory information, if any, and SOURCE at end of table.

Technical Table 3. Science, engineering, and health departmental population at master's-granting institutions, by field: 1988-95

Field	1988	1989	1990	1991	1992	1993	1994	1995
Total, health fields	149	154	161	174	185	192	205	220
Medical fields	9	9	8	10	12	14	18	19
Anesthesiology	1	1	1	1	2	3	3	3
Cardiology	0	0	0	0	0	0	0	0
Oncology/cancer research	0	0	0	0	0	0	0	0
Endocrinology	0	0	0	0	0	0	0	0
Gastroenterology	0	0	0	0	0	0	0	0
Hematology	0	0	0	0	0	0	0	0
Neurology	0	0	0	0	0	0	0	0
Obstetrics and gynecology	0	0	0	0	0	0	0	0
Ophthalmology	0	0	0	0	0	0	0	0
Otorhinolaryngology	0	0	0	0	0	0	0	0
Pediatrics	0	0	0	0	0	0	0	0
Preventive medicine/community health	5	5	5	7	7	8	10	10
Psychiatry	1	1	1	1	1	1	2	2
Pulmonary disease	0	0	0	0	0	0	0	0
Radiology	0	0	0	0	0	0	0	1
Surgery	0	0	0	0	0	0	0	0
Clinical medicine, n.e.c.	2	2	1	1	2	2	3	3
Other health fields	140	145	153	164	173	178	187	201
Dental sciences	0	0	0	0	0	0	0	0
Nursing	42	45	46	50	53	56	60	69
Pharmaceutical sciences	3	3	3	2	2	2	1	1
Speech pathology/audiology	49	51	54	59	60	59	60	62
Veterinary sciences	1	1	1	1	1	1	1	1
Health related, n.e.c.	45	45	49	52	57	60	65	68

KEY: n.e.c. = Not elsewhere classified

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 4. Original departmental response rates: 1975-95

Year	Total	Complete response	Percent	Partial response	Percent	Non-response	Percent
1975	9,162	8,998	98.2	NA	NA	NA	NA
1976	9,275	9,148	98.6	NA	NA	NA	NA
1977	9,513	9,432	99.1	NA	NA	NA	NA
1978[1]	8,242	8,077	98.0	NA	NA	NA	NA
1979	9,796	9,446	96.4	NA	NA	NA	NA
1980	9,930	9,593	96.6	NA	NA	NA	NA
1981	9,917	8,594	86.7	613	6.2	710	7.2
1982	9,776	8,104	82.9	744	7.6	928	9.5
1983	9,663	8,070	83.5	816	8.4	777	8.0
1984[2]	8,748	7,490	85.6	643	7.4	615	7.0
1985[2]	9,025	7,818	86.6	672	7.4	535	5.9
1986[2]	9,097	7,817	85.9	779	8.6	501	5.5
1987[2]	9,254	8,030	86.8	715	7.7	509	5.5
1988	10,295	8,812	85.6	970	9.4	513	5.0
1989	10,318	8,908	86.3	891	8.6	519	5.0
1990	10,483	8,884	84.7	1,053	10.0	546	5.2
1991	10,705	9,052	84.6	1,186	11.1	467	4.4
1992	10,936	9,066	82.9	1,538	14.1	332	3.0
1993	11,146	9,156	82.1	1,555	14.0	435	3.9
1994	11,411	8,863	77.7	2,109	18.5	439	3.8
1995	11,598	9,514	82.0	1,730	14.9	354	3.1

[1] Master's-granting institutions were not surveyed in 1978; totals represent estimates based on 1977 and 1979 data.

[2] Master's-granting institutions were surveyed on a sample basis from 1984 through 1987.

NOTE: Departments providing partial responses were tabulated separately from complete nonrespondents beginning in 1981.

KEY: NA = Not available

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 5. Imputation for nonresponse at doctorate-granting institutions, by area of science and engineering and enrollment status: 1995

Area of science and engineering	Number of graduate departments		Total in survey			Number imputed			Imputation rate (percent)		
	In universe	Totally imputed	Full-time	Part-time	Postdoc-torates	Full-time	Part-time	Postdoc-torates	Full-time	Part-time	Postdoc-torates
Total, all areas	9,989	312	305,652	130,676	35,379	13,122	6,301	861	4.3	4.8	2.4
Engineering	1,389	55	65,778	34,174	2,628	3,715	1,486	65	5.6	4.3	2.5
Physical sciences	568	13	28,209	3,586	5,768	589	98	83	2.1	2.7	1.4
Earth, atmospheric, & ocean sciences	347	10	10,711	3,323	841	332	88	45	3.1	2.6	5.4
Mathematical sciences	390	15	12,711	3,643	255	336	90	6	2.6	2.5	2.4
Computer sciences	268	8	15,186	12,954	212	510	515	5	3.4	4.0	2.4
Agricultural sciences	324	7	9,196	2,439	690	149	32	5	1.6	1.3	.7
Biological sciences	1,994	60	46,310	7,572	14,658	1,892	293	442	4.1	3.9	3.0
Psychology	548	27	28,722	10,643	572	1,860	664	12	6.5	6.2	2.1
Social sciences	1,300	55	52,494	24,855	371	1,947	1,287	5	3.7	5.2	1.3
Health fields	2,861	62	36,335	27,487	9,384	1,792	1,748	193	4.9	6.4	2.1

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 6. Imputation for nonresponse at master's-granting institutions, by area of science and engineering and enrollment status: 1995

Area of science and engineering	Number of graduate departments		Total in survey			Number imputed			Imputation rate (percent)		
	In universe	Totally imputed	Full-time	Part-time	Postdoc-torates	Full-time	Part-time	Postdoc-torates	Full-time	Part-time	Postdoc-torates
Total, all areas	1,609	42	24,583	40,599	103	857	1,359	10	3.5	3.3	9.7
Engineering	192	5	2,084	5,493	13	24	50	0	1.2	.9	.0
Physical sciences	128	3	683	992	37	2	45	6	.3	4.5	16.2
Earth, atmospheric, & ocean sciences	66	1	579	1,189	0	2	8	0	.3	.7	.0
Mathematical sciences	112	0	711	1,444	3	0	0	0	.0	.0	.0
Computer sciences	97	1	1,378	3,991	0	0	4	0	.0	.1	.0
Agricultural sciences	34	0	434	357	13	0	0	0	.0	.0	.0
Biological sciences	184	3	1,973	2,898	28	11	115	4	.6	4.0	14.3
Psychology	245	10	7,040	7,838	6	601	347	0	8.5	4.4	.0
Social sciences	331	13	3,817	8,515	0	168	529	0	4.4	6.2	.0
Health fields	220	6	5,884	7,882	3	49	261	0	.8	3.3	.0

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 7. Imputation rates for all departments at all graduate institutions: fall 1995

[Number of imputed departments = 2,084]

Items 5 and 6 Enrollment status, mechanism of support, and gender of S&E graduate students	Students receiving financial assistance										
	Federal sources (excluding loans)						Non-Federal sources				
	DoD (A)	HHS: NIH (B)	HHS: Other HHS (C)	NSF (D)	Dept. of Agr. (E)	Other Federal sources (F)	Inst. support (G)	Foreign sources (H)	Other U.S. sources (I)	Self support (includ. loans & family sources) (J)	Total for all sources (sum of columns A - J) (K)
Item 5 Full-time graduate S&E students:											
Graduate fellowships	5.7	4.9	18.6	7.0	3.2	9.5	12.2	11.2	9.6	NA	10.5
Graduate traineeships	17.1	10.5	13.9	5.1	13.6	14.8	10.6	7.4	21.5	NA	11.9
Graduate research assistants	8.5	10.6	5.6	8.3	10.4	8.8	11.7	9.7	7.6	NA	9.1
Graduate teaching assistants	NA	26.2	22.4	0.0	12.8	7.4	11.2	NA	20.4	NA	10.2
Other types of support	5.8	11.9	13.0	6.2	4.8	19.9	12.9	8.5	7.7	17.8	16.1
Full-time total	7.7	10.5	12.4	7.9	10.1	10.5	11.6	9.7	8.7	17.8	4.3
Full-time women	12.2	11.6	15.7	7.7	11.2	14.2	14.0	10.6	9.5	20.7	6.5
Full-time first-year total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.9
Full-time first-year women	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	9.4
Item 6 Part-time graduate S&E students:											
Total	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4.8
Women	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	8.1

Item 7 Race/ethnicity of full-time and part-time graduate S&E students, by sex	U.S. citizens and permanent residents							Foreign	Total (sum of columns A - H)
	Black non-Hispanic (A)	American Indian/ Alaskan (B)	Asian/ Pacific Islander (C)	Hispanic (D)	White non-Hispanic (E)	Other (F)	Unknown (G)	(H)	(I)
Men enrolled full-time	8.1	3.6	10.2	8.3	11.6	4.3	10.1	12.6	6.7
Women enrolled full-time	11.0	11.9	11.0	12.0	10.3	10.6	8.9	10.9	6.5
Full-time, total	8.1	2.8	7.0	8.3	8.4	3.4	9.6	8.7	4.3
Men enrolled part-time	12.1	5.2	9.4	9.5	12.3	6.6	6.4	14.5	7.9
Women enrolled part-time	11.7	6.9	10.2	10.6	12.4	7.2	5.9	12.5	8.1
Part-time, total	11.4	4.3	9.3	9.5	11.8	6.0	6.0	13.1	4.8

Item 8 S&E postdoctorates and nonfaculty research staff with doctorates	Postdoctorates						Other non-faculty research staff with doctorates (G)
	Source of support				Total for all sources (A - D) (E)	Foreign postdoctorates (F)	
	Federal			Non-Federal (D)			
	Fellowships (A)	Traineeships (B)	Research grants (C)				
Total	10.4	12.8	11.1	11.4	7.5	8.0	8.4
Women	8.7	10.7	11.5	10.1	7.3	9.4	8.3
With MD, DDS or DVM degrees	15.3	14.6	11.9	10.7	8.7	8.8	10.9

KEY: NA = not applicable

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

Technical Table 8. Comparison of graduate enrollment data as originally published and as modified through the fall 1995 graduate student survey cycle: 1975-95

Year	Total, all institutions			Doctorate-granting institutions			Master's-granting institutions		
	Original total	Revised total	Percent change	Original total	Revised total	Percent change	Original total	Revised total	Percent change
	Total graduate enrollment in surveyed fields								
1975[1]	336,843	328,709	-2.4	290,662	295,146	1.5	46,181	33,563	-27.3
1976	345,979	333,824	-3.5	297,280	298,939	.6	48,699	34,885	-28.4
1977	362,978	345,491	-4.8	306,710	306,381	-.1	56,268	39,110	-30.5
1978[2]	N/A	339,961	N/A	311,982	298,938	-4.2	N/A	41,023	N/A
1979	375,267	357,688	-4.7	321,770	314,736	-2.2	53,497	42,952	-19.7
1980	383,210	367,158	-4.2	333,658	324,203	-2.8	49,552	42,955	-13.3
1981	392,034	375,203	-4.3	340,203	331,042	-2.7	51,831	44,161	-14.8
1982	399,682	382,371	-4.3	347,414	337,142	-3.0	52,268	45,229	-13.5
1983	413,564	390,522	-5.6	358,276	343,923	-4.0	55,288	46,599	-15.7
1984[3]	415,064	394,718	-4.9	363,470	346,425	-4.7	51,594	48,293	-6.4
1985[3]	434,836	404,088	-7.1	371,052	355,818	-4.1	63,784	48,270	-24.3
1986[3]	446,102	415,557	-6.8	384,203	366,668	-4.6	61,899	48,889	-21.0
1987[3]	449,585	421,526	-6.2	388,681	372,130	-4.3	60,904	49,396	-18.9
1988	445,595	424,671	-4.7	391,683	377,612	-3.6	53,912	47,059	-12.7
1989	440,983	434,637	-1.4	385,025	384,800	-.1	55,958	49,837	-10.9
1990	458,943	452,250	-1.5	398,405	398,208	.0	60,538	54,042	-10.7
1991	475,691	471,314	-.9	411,296	413,570	.6	64,395	57,744	-10.3
1992	495,397	493,826	-.3	427,792	432,431	1.1	67,605	61,395	-9.2
1993	506,678	504,838	-.4	440,875	440,471	-.1	65,803	64,367	-2.2
1994	506,626	505,259	-.3	441,480	441,164	-.1	65,146	64,095	-1.6
1995	501,510	N/A	N/A	436,328	N/A	N/A	65,182	N/A	N/A
	Full-time								
1975[1]	228,316	219,844	-3.7	210,641	207,417	-1.5	17,675	12,427	-29.7
1976	233,748	223,513	-4.4	215,355	210,882	-2.1	18,393	12,631	-31.3
1977	238,202	226,845	-4.8	218,226	212,897	-2.4	19,976	13,948	-30.2
1978[2]	N/A	223,078	N/A	217,588	208,588	-4.1	N/A	14,490	N/A
1979	243,331	231,868	-4.7	224,057	216,842	-3.2	19,274	15,026	-22.0
1980	249,111	238,492	-4.3	230,601	222,850	-3.4	18,510	15,642	-15.5
1981	253,428	242,118	-4.5	234,529	226,607	-3.4	18,899	15,511	-17.9
1982	255,959	244,830	-4.3	237,676	229,540	-3.4	18,283	15,290	-16.4
1983	263,800	252,092	-4.4	243,646	235,687	-3.3	20,154	16,405	-18.6
1984[3]	264,146	253,959	-3.9	246,848	236,747	-4.1	17,298	17,212	-.5
1985[3]	269,319	257,351	-4.4	249,666	240,449	-3.7	19,653	16,902	-14.0
1986[3]	279,235	266,197	-4.7	259,980	249,107	-4.2	19,255	17,090	-11.2
1987[3]	285,200	271,080	-5.0	264,862	253,689	-4.2	20,338	17,391	-14.5
1988	288,619	275,204	-4.6	268,385	259,031	-3.5	20,234	16,173	-20.1
1989	286,619	282,741	-1.4	267,554	266,027	-.6	19,065	16,714	-12.3
1990	295,836	292,854	-1.0	275,262	274,596	-.2	20,574	18,258	-11.3
1991	308,669	307,049	-.5	286,756	287,023	.1	21,913	20,026	-8.6
1992	323,399	322,753	-.2	299,753	300,980	.4	23,646	21,773	-7.9
1993	330,249	329,876	-.1	307,181	306,942	-.1	23,068	22,934	-.6
1994	331,969	332,453	.1	307,964	308,743	.3	24,005	23,710	-1.2
1995	330,235	N/A	N/A	305,652	N/A	N/A	24,583	N/A	N/A

See explanatory information, if any, and SOURCE at end of table.

Technical Table 8. Comparison of graduate enrollment data as originally published and as modified through the fall 1995 graduate student survey cycle: 1975-95

Year	Total, all institutions			Doctorate-granting institutions			Master's-granting institutions		
	Original total	Revised total	Percent change	Original total	Revised total	Percent change	Original total	Revised total	Percent change
	Part-time								
1975[1]	108,527	108,865	0.3	80,021	87,729	9.6	28,506	21,136	-25.9
1976	112,231	110,311	-1.7	81,925	88,057	7.5	30,306	22,254	-26.6
1977	124,776	118,646	-4.9	88,484	93,484	5.7	36,292	25,162	-30.7
1978[2]	N/A	116,883	N/A	94,394	90,350	-4.3	N/A	26,533	N/A
1979	131,936	125,820	-4.6	97,713	97,894	.2	34,223	27,926	-18.4
1980	134,099	128,666	-4.1	103,057	101,353	-1.7	31,042	27,313	-12.0
1981	138,606	133,085	-4.0	105,674	104,435	-1.2	32,932	28,650	-13.0
1982	143,723	137,541	-4.3	109,738	107,602	-1.9	33,985	29,939	-11.9
1983	149,764	138,430	-7.6	114,630	108,236	-5.6	35,134	30,194	-14.1
1984[3]	150,918	140,759	-6.7	116,622	109,678	-6.0	34,296	31,081	-9.4
1985[3]	165,517	146,737	-11.3	121,386	115,369	-5.0	44,131	31,368	-28.9
1986[3]	166,867	149,360	-10.5	124,223	117,561	-5.4	42,644	31,799	-25.4
1987[3]	164,385	150,446	-8.5	123,819	118,441	-4.3	40,566	32,005	-21.1
1988	156,976	149,467	-4.8	123,298	118,581	-3.8	33,678	30,886	-8.3
1989	154,364	151,896	-1.6	117,471	118,773	1.1	36,893	33,123	-10.2
1990	163,107	159,396	-2.3	123,143	123,612	.4	39,964	35,784	-10.5
1991	167,022	164,265	-1.7	124,540	126,547	1.6	42,482	37,718	-11.2
1992	171,998	171,073	-.5	128,039	131,451	2.7	43,959	39,622	-9.9
1993	176,429	174,962	-.8	133,694	133,529	-.1	42,735	41,433	-3.0
1994	174,657	172,806	-1.1	133,516	132,421	-.8	41,141	40,385	-1.8
1995	171,275	N/A	N/A	130,676	N/A	N/A	40,599	N/A	N/A

[1] The 1976 survey also collected 1975 data from master's-granting institutions.

[2] Master's-granting institutions were not surveyed in 1978; totals represent estimates based on 1977 and 1979 data.

[3] These figures include estimated data for master's-granting institutions, which were surveyed on a sample basis from 1984 through 1987. See "Technical Notes" for further information.

KEY: N/A = Not available

SOURCE: National Science Foundation/SRS, Survey of Graduate Students and Postdoctorates in Science and Engineering

DATA AVAILABILITY

Data published in these reports are also available on the World Wide Web. Single-year or multiyear data files are available with data for fall 1975 through fall 1995. Information on file formats and the years for which they are available, with instructions for downloading, can be found on the World Wide Web at http://www.nsf.gov/sbe/srs/gss/95pubuse.htm. The current data user guide, *Guide to the Data Files from the National Science Foundation's Annual Surveys of Academic Science and Engineering* can be found at http://www.nsf.gov/sbe/srs/gss/95dug/start.htm. For further information on the graduate student survey contact the Project Monitor Joan Burrelli. Her address and telephone number are—

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National Science Foundation
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Selected data items for individual doctorate-granting institutions are available on computer-generated institutional profiles. These profiles cover data from this survey as well as data collected in NSF's other academic S&E surveys: the Survey of Scientific and Engineering Expenditures at Universities and Colleges (R&D expenditures survey) and the Survey of Federal Support to Universities, Colleges, and Nonprofit Institutions (Federal support survey). Institutional profiles for any institution or group of institutions are also available on the World Wide Web, or can be ordered in hard copy form through Mr. Richard Bennof. He can be reached at—

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Institutional researchers can obtain data from several academic S&E resources through the Computer Aided Science Policy Analysis and Research (CASPAR) database system, which is an easy-to-use tool for the retrieval and analysis of statistical data on academic S&E resources. CASPAR provides an extensive and growing data library with multiyear statistics on the state of higher education in general and on academic S&E resources specifically. This data library is based on a set of standard institutional and field-of-science definitions across the multiple sources used to develop the database. The CASPAR program includes built-in help capabilities to facilitate the use and interpretation of the data.

The latest version of CASPAR can now be accessed via the World Wide Web (http://www.nsf.gov/sbe/srs/srsdata.htm). A CD-ROM compact disk is available upon special request. For information, contact Joan Burrelli at the previously provided address.

CASPAR data are drawn from a number of sources. All data are available for individual institutions, by State, and at the national level. Longitudinal data from surveys of universities and colleges conducted by the NSF's Division of Science Resources Studies include the R&D expenditures survey, the Federal support survey, and the graduate student survey. Data from the surveys of universities and colleges conducted by NCES include earned degrees, opening fall enrollment, faculty salaries, tenure and fringe benefits, and financial statistics.